

BOARD OF WATER SUPPLY
COUNTY OF MAUI

REGULAR MEETING
MINUTES OF JANUARY 19, 2017

The regular meeting of the Maui County Board of Water Supply was held at the Department of Planning Conference Room, 250 South High Street, Wailuku, Maui, on Thursday, January 19, 2017.

CALL TO ORDER

The meeting was called to order by Chair Lyons at 9:00 a.m.

ATTENDANCE

Members present: Anders Lyons, Chair
 Robert Joslin, Vice Chair
 Shay Chan Hodges
 Cyrus Kodani
 Zoltan Milaskey
 Michael Suzuki
 Thomas Watanabe

Staff present: Dave Taylor, Director
 Gladys C. Baisa, Deputy Director
 Jennifer M. P. E. Oana, Deputy Corporation Counsel
 Gaye Hayashida, Commission Support Clerk

INTRODUCTION OF DEPUTY DIRECTOR GLADYS BAISA

The Board welcomed Gladys Baisa as the department's new deputy director.

Ms. Baisa expressed her excitement to be able to work with Director Taylor in the running of the Water Department. She told the board members that their decisions matter and their input is important to the council. She promised to do her best and looks forward to meet with any member who wanted to call on her.

APPROVAL OF MINUTES

Minutes of December 15, 2016

Chair Lyons asked for a motion to approve the minutes of December 15, 2016.

Motion: Vice Chair Joslin moved to approve the minutes of December 15, 2016

Second: Member Suzuki

Discussion: None

Vote: Unanimous. Motion carried. The minutes of December 15, 2016 were approved as submitted

TESTIMONY FROM THE PUBLIC

There was no public testimony.

OTHER BUSINESS

Presentation by Department Staff on the Maui Island Water Use and Development Plan Update

Eva Blumenstein, Water Resources and Planning Program Manager, gave a power point presentation on the update. A copy is attached. Board members previously received the 200 plus page document of the Maui Island Water Use and Development Plan, November 15, 2016.

Member Milaskey stated that, in reference to the presentation, there was too much information to digest. People just want to know basic facts. We should be able to communicate, summarize and to set the goals as bullet points. There is a disconnect between what we want to achieve and how it's going to be communicated.

Ms. Blumenstein acknowledged that the information is really complex and technical. And it is not something that they want thrown out to the public but they want to make sure that those who have been involved in this public process for so long get their issues adequately addressed.

Member Chan Hodges noted that there were angry people at the Upcountry public meeting she attended also. She believes the issue is clarifying what the purpose is. These meetings are well intentioned but the vast majority of the community doesn't really get it.

Vice Chair Joslin stated that he understands the document because his background is in hydrology and construction. He understands the issues over public speaking and that people don't understand this but he does and he likes seeing these technical documents. He reiterated what he has said for years and that is we need to build some really big reservoirs in higher elevations and keep doing it. He added that if you go into a lot of detail like this water use document, then expect a lot of ignorance. People fear what they don't understand. He agrees with Members Milaskey and Chan Hodges that the department needs to do summaries to get the point across.

Board of Water Supply
Minutes of January 19, 2017

Member Chan Hodges asked what is the goal of the department's renewable energy use now and in the future because we have get to 100% by 2045.

Director Taylor stated that the department's current alternative energy generates about 1.5% of the department's total usage. The other 98.5% comes from Maui Electric on systems the department doesn't own so as Maui Electric moves towards 100% alternative energy so that 98.5 will become 100%. Just because they are getting energy from a utility does not mean it is not alternative energy.

Chair Lyons asked Ms. Blumenstein what advice she is seeking from this Board.

Ms. Blumenstein stated that 2 big undefined points are conservation and the uncertainties of surface water but staff will come back later with recommendations and ask for the board's feedback at that time.

Director Taylor added that the Water Use and Development Plan is not a Department of Water Supply plan but rather it is a Maui Island plan because the DWS uses only 10% of the total water use on Maui. This community planning document is about where the water is going to come from.

Discussion and possible action regarding the Board's January 21, 2016 letter supporting the proposed agriculture water rates ordinance

Vice Chair Joslin explained to the new members that at prior board meetings the board drafted the January 21st letter after adjudicating cases where people wanted ag water rates. They came up with a way to stratify the rates for casual versus full time farmers. And this may be the year this proposed ordinance could go through.

Chair Lyons explained that the proposed ordinance is tiered and based on annual income from agricultural production. At the lower ag income levels one would pay a higher rate than those who have higher income from agriculture. The more income from ag, the lower the rate for ag water.

Motion: Vice Chair Joslin moved to submit the January 21, 2016 letter again to the mayor and to Riki Hokama.

Member Chan Hodges asked if currently there are no income requirements for ag water rates.

Vice Chair Joslin explained that it is now based on sales of \$1,000 minimum annually.

Staff noted that there are 2 versions of the letter before the board. One is addressed to Chair Mike White and the other to G. Riki Hokama and it is up to the board who the letter goes to.

Director Taylor suggested that the letter generally should say “to pass on to the County Council”. It would go to the administration anyway and then they can figure out the details of who the letters should be addressed to and things like that.

Motion: Vice Chair Joslin moved to amend his motion to have the letter go through “normal channels”.

Second: Member Kodani

Discussion: No further discussion on this matter

Vote: Unanimous. Motion passes.

Receipt of Board Member request for agenda items to be placed on future agendas

No agenda items were submitted by the board members at this time.

DIVISION REPORTS

December Division Operational Reports

Director Taylor stated that there is nothing of major consequence to report at this time. It has been business as usual.

The mayor's budget gets passed to council by March 25th so right now their primary endeavor is to finalize the budget in the next month or so.

Member Suzuki stated that he read that the department was trouble-shooting reduced flows into the raw water reservoir at the Piiholo Water Treatment Facility

The director explained that the Piiholo 50 million gallon open reservoir is filled by a pipeline that runs deep into the forest to the water intakes. There was a blockage in that line in the forest. So that was what it was referring to.

Vice Chair Joslin asked what is the elevation of the Piiholo reservoir.

Director Taylor replied that it is just around 3,000 feet.

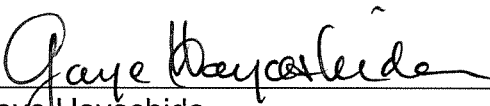
Chair Lyons asked how the repairs were going at 'lao.

Director Taylor stated that the entire system will be back online within 2 months at this point. There were some unforeseen challenges that they ran into but most of the heavy work is done. No residents have been without water.

ADJOURNMENT


There being no further business the regular meeting was adjourned at 10:15 a.m.

Prepared by:



Gaye Hayashida
Commission Support Clerk

Approved for distribution:



David Taylor
Director

Maui County Water Use and Development Plan

**Maui County
Water Use and Development Plan
Update**

*Board of Water Supply
Briefing*

January 19, 2017
Maui County Department of Water Supply

Presentation Outline

- Status & Timeline
- Regulatory Framework
- Management Framework
- Planning Scenarios
- Water Resource Availability
- Water Use & Demand
- Resource Adequacy
- Next Steps

Status & Timeline

Maui Island

Public meetings, Targeted Stakeholder Meetings
Public Workshops
Brief CWRM/Board of Water Supply.....
Draft Plan Internal Review.....
3rd Round Public Meetings Preliminary Strategies
Board of Water Supply Draft Plan Review.....
County Council/CWRM Final Plan Approval.....

Winter 2015
Spring 2016
Summer 2016
Fall 2016
Fall/Winter 2016
Winter 2016/Spring 2017
Spring/Summer 2017

Moloka'i

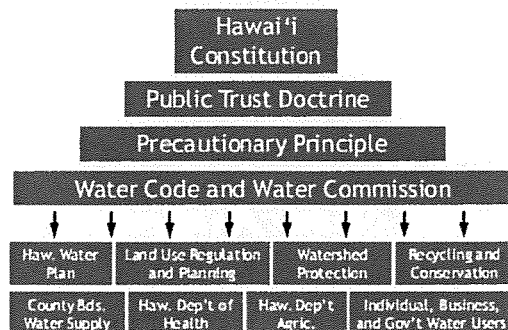
Commence process.....

2017

3

State Regulatory Framework

The WUDP provides advice to CWRM regarding the planning, management, conservation, use, development, and allocation of surface water and ground water resources.



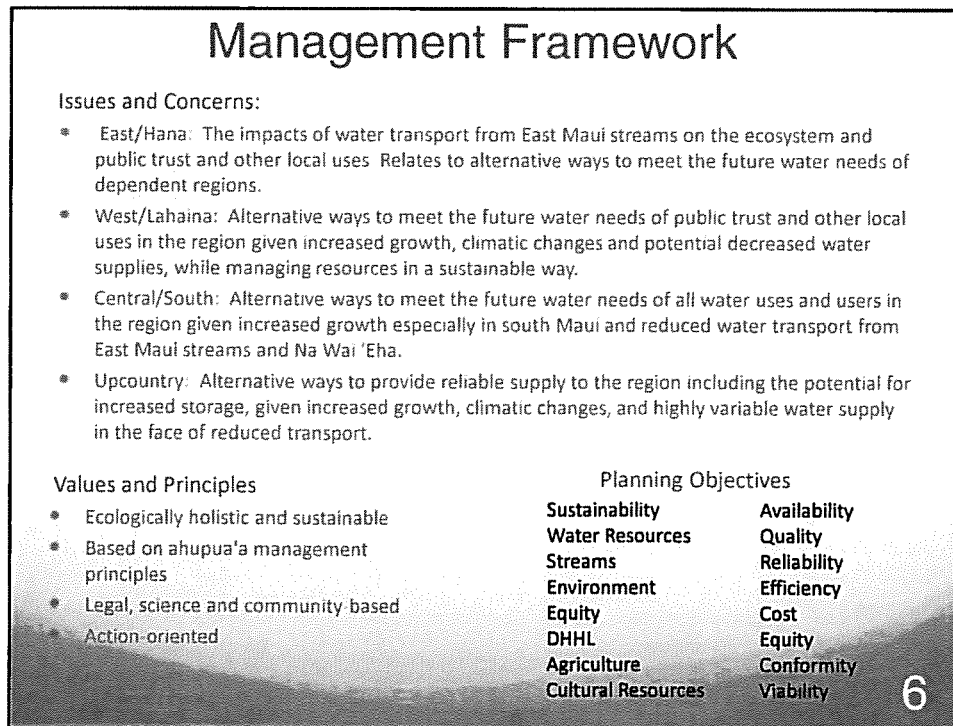
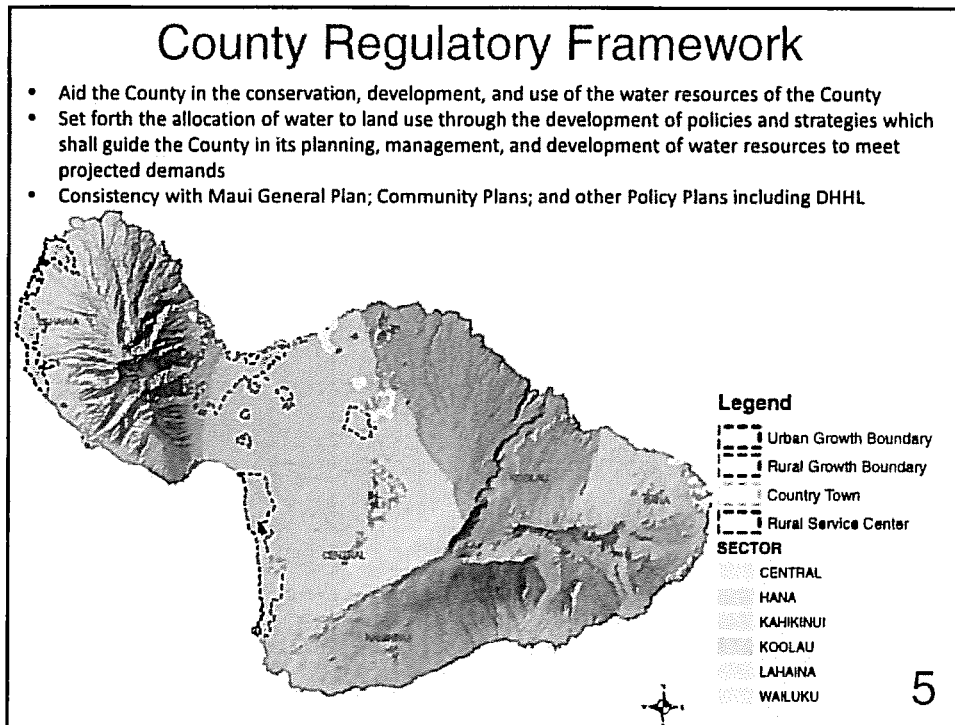
Public Trust Doctrine

- Maintenance of waters in their natural state;
- Domestic water use of the general public, particularly drinking water;
- The exercise of Native Hawaiian and traditional and customary rights, including appurtenant rights; and
- Reservations of water for Hawaiian Home Land allotments

Native Hawaiian Water Rights

- Hawaii Constitution Article XII Section 7: Protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua'a tenants
- HRS § 174C-101: Traditional and customary rights of ahupua'a tenants ... shall not be abridged or denied by this chapter
- Supreme Court Ka Pa'akai O Ka 'Aina v. Land Use Commission: Agencies protect native Hawaiian customary and traditional practices to the extent feasible

4



Management Framework

Criteria	Planning Objectives							
	Sustainability Resources Streams Environment	Ag	Equity DHHL Culture	Availability	Quality	Reliability	Efficiency Cost	Plan Viability Conformity
Groundwater sustainable yield levels are maintained over time	X			X				X
Stream flows restored to level to support stream ecosystems	X		X	X				X
Watersheds protected from invasive animals and plants	X			X				
Interim flow standards adopted for watersheds	X		X					
Scientific studies for aquifer systems complete (support science-based SY)	X							
Water resources and water system use is based on aquifer recharge and stream flows under drought conditions	X		X		X	X		
Chloride levels in wells remain stable (salt water intrusion)	X	X		X	X	X	X	
Use of recycled water increased	X			X		X		
Graywater and catchment systems installed	X			X				
Infrastructure projects increase recycled water use and stormwater capture	X			X				
Watershed collaboration increased	X			X				X
Native Hawaiian community consultation process instituted			X					X
Per capita water use decreased	X			X		X	X	
MDWs prioritize DHHL needs over lower priority needs			X					7

Management Framework

Criteria	Planning Objectives							
	Sustainability Resources Streams Environment	Ag	Equity DHHL Culture	Availability	Quality	Reliability	Efficiency Cost	Plan Viability Conformity
Potable and irrigation systems water loss decreased	X			X			X	
Potable water use for nonpotable needs decreased	X							
Community water education increased	X						X	
Incentives for water conservation increased	X			X			X	
Drinking water standards met at all times				X	X	X		
Aquifer health maintained	X				X			
Public system water shortages to serve existing customers avoided				X		X		
Public water supply drought shortages avoided				X		X		
Contingencies in place to support water supply systems functions during emergency conditions				X		X		
Renewable energy use increased						X	X	
Water is available to timely serve development in MIP			X	X				X
Implementation plan for WUDP is incorporated into County budget and CIP planning						X		X
Strategies to meet all needs incorporated into WUDP			X					8

Planning Scenarios

Evaluate future water resources and demands over the planning horizon 2015-2035

Population Based Water Demand Scenario: Based on the population growth rates for each community plan area in the Maui Island Plan, with updated growth rates in the 2014 Socio-Economic Forecast. Takes into account all water sectors excluding large agricultural demands which are not correlated with population growth. High and Low Cases are generated based on Socio-Economic Forecast. Projected agricultural water demand over the 20-year period is then added as a separate component for a comprehensive assessment of water demands.

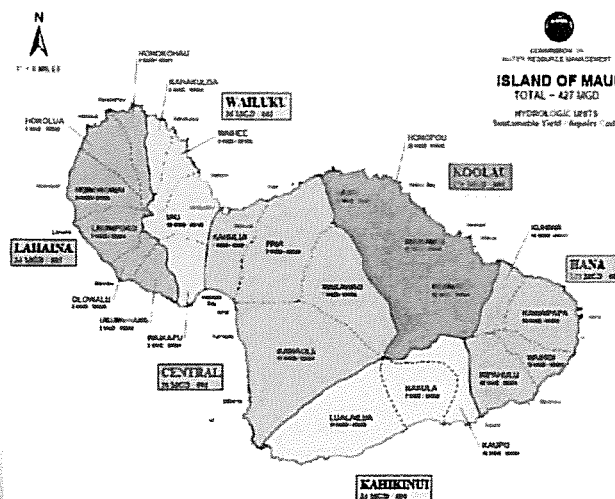
Land Use Full Build Out Scenario: An alternative scenario projects water demand based on full development of the County General Plan, County Zoning and DHHL land use plans over an undetermined period

Drought and Climate Change: Uncertainty about natural climate and weather patterns, and about relationships among factors, make regional and long-term predictions very complex. *Climate Change Adaptation Priority Guidelines* incorporated to increase resilience and reduce vulnerability to risks related to climate change.

Agricultural Water Demand Scenario: Uncertainty about agricultural products market and regional crop water demand, the transition of sugarcane lands to other crops, potential future use of kuleana lands, and associated legal issues relating to water rights and priorities of use. Scenarios rely on stated assumptions and best data available.

9

Water Resource Availability: Groundwater



- The primary source of supply for the majority of water users on the island served by both county-owned and private public water systems.
- Replenished by rainfall including fog recharge and classified as a renewable resource. The amount of groundwater that can be developed is limited by the amount of natural recharge
- The groundwater sustainable yield (SY) is the maximum rate that groundwater can be withdrawn without impairing the water source as determined by the Commission on Water Resource Management

10

Water Resource Availability: Groundwater

- Sustainable yield of basal aquifers represents the maximum aquifer pumping rate assuming optimal placement of wells and pump sizes
- Drought conditions significantly impact recharge compared to average climate conditions, with a projected mean 23% decrease in annual recharge
- Withdrawals are also limited by:
 - Water use permit allocations in water management areas
 - Water quality/groundwater contamination
 - Development cost and risk

Aquifer Sector	2008 SY	Drought Recharge Reduction (%)
Wailuku	36	29%
Lahaina	34	24%
Central	26	25%
Ko'olau	175	21%
Hāna	122	19%
Kahikinui	34	37%
Total	427	

11

Water Resource Availability: Surface Water

- There are 90 perennial streams in Maui, 82 of which have been diverted to some extent
- Supplies a small proportion of drinking water island-wide but is a significant source of supply in West Maui and Upcountry.
- Availability is uncertain due to multiple factors effects of diversions on the ecosystem, lack of numerical instream flow standards, lack of gages and legal issues.
- The CWRM's mandate is to establish instream flow standards (IFS) that will protect instream uses while allowing for reasonable and beneficial offstream use

Flows and IIFS	Low Q50	Low Q70	Low Q90	Q90
Na Wai Eha	63	49	31	31
East Maui	44	25	14	14
Lahaina (USGS)	40	31	22	22
Total	147	105	68	68
				IIFS (or Q90)
Na Wai Eha CWRM 2010	69	55	43	35.4
East Maui CC 1/15/16 CWRM				
H.O.	40		19	40
Lahaina (USGS)	40	31	22	22
Total	149	86	84	97

Reported Diversions, 2011-2015 Ave
IIFS (Best Guess) East Maui 1/16/15 Hearing Officer+Q90Lahaina+Q90NaWaiEha
Issue: IIFS only represent a portion of the streams
IIFS versus Q on streams covered by the IIFS

12

Alternative Water Resources

Recycled Wastewater

WWRF	Treatment Level	WWRF Design Capacity	Recycled Water Produced	Recycled Water Used	% of Total Produced Used	% of Design Capacity Used	Application
Wailuku Kahului	R-2	7.9	4.7	0.25	5.3%	3.2%	None
Kihel	R-1	8	3.6	1.5	41.5%	18.7%	Golf Course, Ag, Dust Control, Landscape, Fire Protection
Makena (Private)	R-1	0.75	0.08	0.08	10.6%	10.6%	Golf Course
Pukalani (Private)	R-1	0.29	0.19	0.19	100%	65.5%	Landscape
Haleakala (Private)		N/A	0.18	N/A	N/A	N/A	Closed loop system, Sanitary purposes
Lahaina	R-1	9	3.84	0.88	22.9%	9.8%	Golf Course, Landscape, Nursery, Agriculture
Total		25.9	12.6	2.65			

Rainwater Catchment: Feasible where consistent rainfall

Stormwater Reuse : Capture and reuse of surface water runoff can provide non-potable water uses. Range in technologies: source reuse (ex. rain barrels and cisterns); small lot reuse (ex. vegetated infiltration basins), stormwater capture (injection well), stormwater storage (ex. detention basin), stormwater distribution (ex. ditch or pipe network)

Desalination: Seawater, brackish water or treated wastewater can be processed through several desalination methods. Brine disposal and cost have posed significant impediments

13

Resource Availability & Use

Resource	Available	Used	Balance
Groundwater	427	91	336
Potable Uses		29	
Nonpotable Uses		62	
Surface Water	Undetermined	362	
Potable Uses		11	
Nonpotable Uses		351	
Recycled Water	26	3	23

14

Demand Projections Water Use Rates

Land use based build-out: Based on water system standards 2002 *Water System Standards*, Domestic Consumption Guidelines and applied to equivalent zoning district. Residential use rates adjusted based on empirical consumption data. Agricultural use rates adjusted to comport with the Agricultural WUDP.

Department of Hawaiian Homelands: Water system standards applied to DHHL land use designations

Population growth based: Projected based on actual demand, compared to historic use. Range includes high and low growth alternatives per 2014 Socio-Economic Forecast

Diversified Agriculture: Average per acre water use based on Department of Ag water rates and CWRM

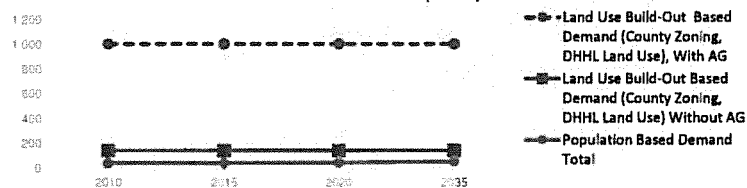
Lo'i Kalo: Per acre water inflow into lo'i and consumptive use based on CWRM data/contested cases

HC&S Lands: Potential use categories: Diversified crops, Irrigated Pasture, Biofuel, Monocrops and Forestry. Range include HC&S crop specific rates per the March 2016 "Diversified Agricultural Plan" and DOA crop specific rates

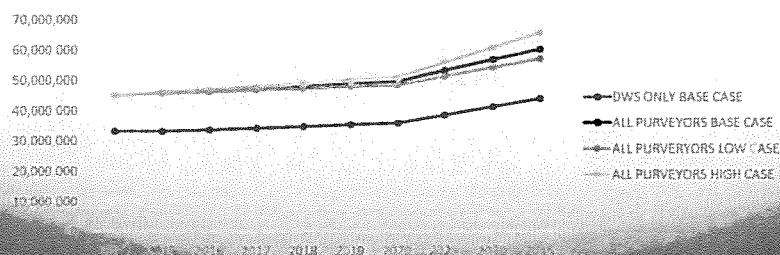
15

Projected Demand Scenarios

Maui Island Population Growth and Land Use Build-Out Based Demand, 2010-2035 (MGD)



Maui Island Population Growth Based Demand 2014 - 2035 (GAL)
Not including Major AG Use



16

Projected Agricultural Demand

Agricultural Use	Total MGD
Kuleana/Lo'i Kalo	10.89 – 15.52
Department of Hawaiian Homelands	31
Diversified Ag	20.86 – 25.0
HC&S lands	22.5 – 124.45

Kuleana/Lo'i Kalo: Range based on 2015 Ag Baseline and CWRM IIFS proceedings. Accounts for stream taro use

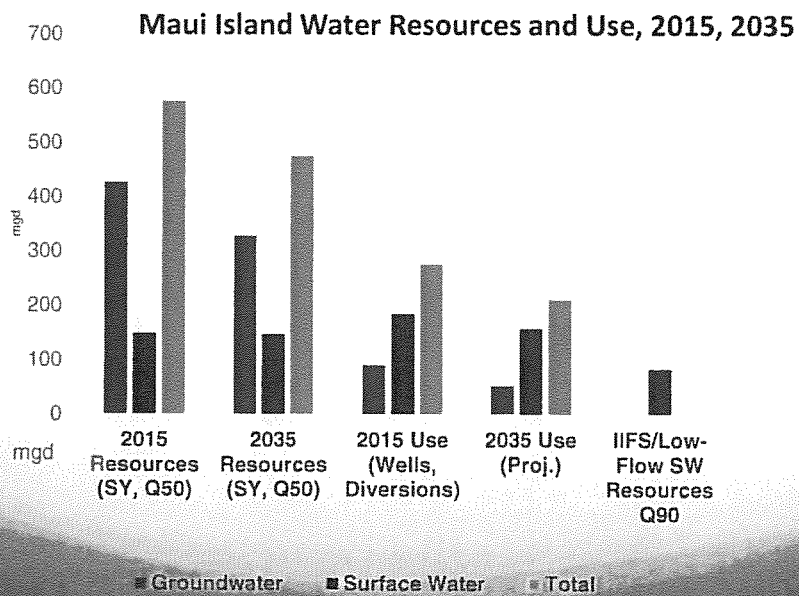
DHHL: DHHL's regional and island plans. Non potable demands for ag and pastoral use.

Diversified Ag: Range based on 2015 Ag Baseline and 20% increase, includes Kula Ag Park Expansion. Not including sugarcane and taro

HC&S lands: Range based on low to high scenarios: low: 25% of Important Ag Lands farmed; high: 100% of Important Ag Lands farmed. (HC&S "Diversified Agricultural Plan", 100% of plantation acreage represents 107.79 mgd)

17

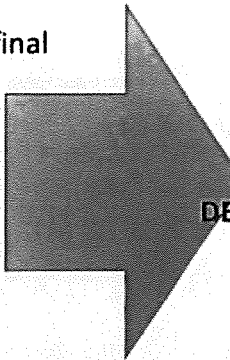
Water Resource Adequacy



18

Next steps...

- Incorporate findings from final round of public workshops
- Refine regional strategies (Sector Reports)
- Recommendations and Implementation



**MAUI ISLAND
WATER USE &
DEVELOPMENT PLAN
DRAFT**

<http://co.maui.hi.us/2051/Maui-Island-Water-Use-Development-Plan>

Mahalo!

Maui County DWS
Water Resources & Planning

19